

A pair of Supermarine Walrus naval amphibians with Pegasus engines operating as pushers.

fuselage and wooden wing and is fitted with two Siddeley Cheetah IX engines of 310 h.p. each. The undercarriage retracts into recesses behind the engines, leaving a small portion of each wheel exposed. Flaps are being incorporated in the latest model.

The machine carries a crew of three and a military load ranging between approximately one-half and three-quarters of a ton, according to the range required, this being variable between 425 and 800 miles. In the extreme nose of the fuselage is a position for the bomb aimer, followed, in the order mentioned, by the pilot's cabin (containing a fixed Vickers gun), a radio operator's position, and an Armstrong Whitworth transparent, rotatable gun turret mounted on top of the fuselage aft of the wings. The main cabin is exceptionally light and airy for a military type.

The bombs are stowed within the wing; in fact, the whole design has been kept clean enough to permit a maximum speed of 188 m.p.h. at 7,000 ft. The landing speed, without flaps, is 62 m.p.h., and the absolute ceiling 21,000 ft.

The Royal Air Force has also standardised on the Avro Tutor, a dual-control biplane with Siddeley Lynx engine, and the Prefect, a somewhat similar model equipped for navigational training. Also of military interest is the Mk.II version of the little Genet-Major-engined Cadet which can be employed for preliminary training in photography and in the use of a camera gun, apart from its *ab initio* qualifications.

The Avro 626 is of similar general design to the Tutor, but has a Cheetah engine and has been planned for the training of military personnel in all duties, including *ab initio* work and the operation of all normal armament and Service equipment.

SAUNDERS-ROE

THE London flying boat, already equipping certain units of the R.A.F., is the only current Saro military design which can be mentioned. Numbers of these machines are still under construction at the Cowes works of the company.

The London was designed with a view to obtaining good seaworthiness and comfort, and has, accordingly, a substantial, roomy hull. Above this are biplane wings, the upper set carrying a pair of Bristol Pegasus radials of the Series III of Series X pattern. The latest machines for the Service are having the "X." Stainless steel is employed for the wing structure.

Gun rings are provided in the bows, on the hull decking, aft of the wings, and behind the monoplane tail, which has twin fins and rudders.

With Pegasus III engines the maximum speed is 136 m.p.h. at 5,000 ft., but the installation of the new "Xs" should improve all-round performance quite considerably although the range may be slightly reduced.

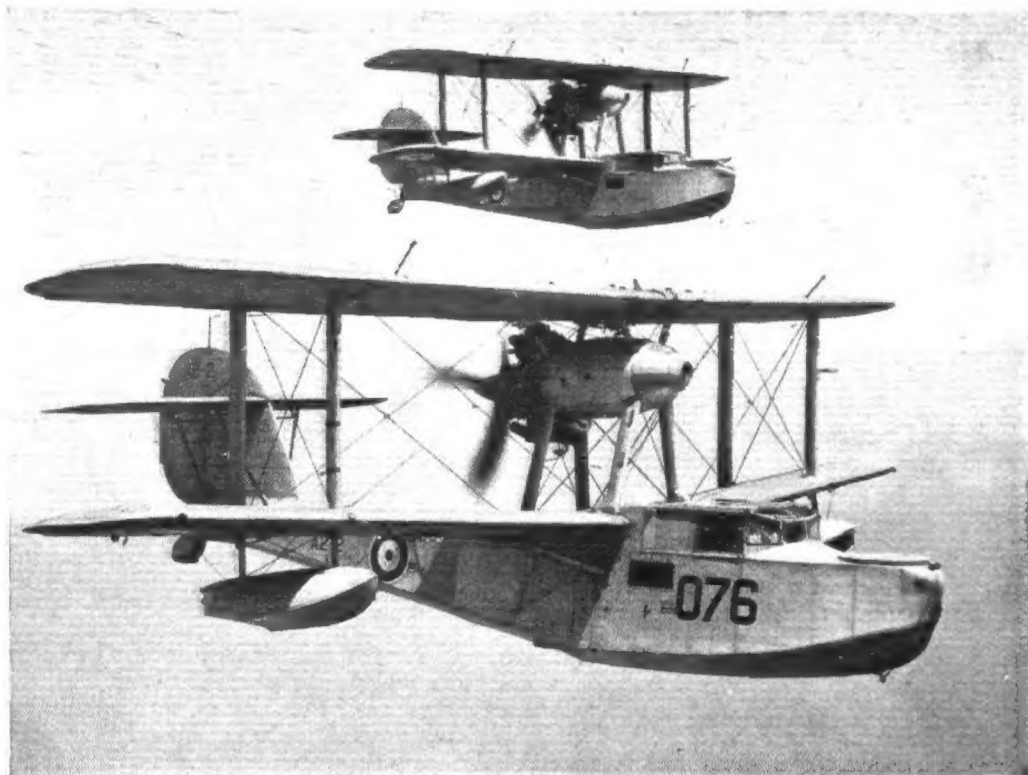
A number of Saro Cloud monoplane amphibians with two Siddeley Serval engines are used by the R.A.F. for navigational training.

SHORT

ONE of the most successful flying boats adopted by the Royal Air Force is the Short Singapore III, which is still in production at the Rochester (Kent) works of the Short company.

The Singapore III is unusual in that its four engines (moderately supercharged Rolls-Royce Kestrels of 675 h.p.) are arranged in pairs between the biplane wings, one engine of each pair driving a tractor airscrew, and the other operating as a pusher.

Long range, open sea reconnaissance and coastal patrol are the primary duties of the Singapore III. Forward of the en-



closed pilots' cockpit is a gun ring, and behind the wings are two similar mountings, one (arranged to slide laterally) on top of the hull, and the other in the extreme tail.

A speed of 145 m.p.h. is attainable, and the normal range is about 1,000 miles.

SUPERMARINE

THE Supermarine Aviation Works (Vickers), Ltd., have built the fastest military aeroplane in the world. The machine, known as the Spitfire, has been ordered in quantity by the Air Ministry, and is of exceptionally clean design, experience gained in the pioneer work done by the Supermarine Company in the design and construction of Schneider Trophy seaplanes having been utilised. Fitted with a Rolls-Royce Merlin engine the Spitfire is an all-metal low-wing monoplane with retractable undercarriage and wing flaps. The latest technique developed by the manufacturers in the application of stressed skin construction has been used, giving exceptional stiffness for wings and fuselage for a structure weight claimed never before to have been attained with this class of machine. The metal skin covering is perfectly smooth, a point of importance where speeds of over 300 m.p.h. are concerned. The span is 37 ft.

The largest Supermarine type in production is the Stranraer flying boat, a twin-engined biplane developed from the Southampton and Scapa types. The hull is of Alclad with main attachment fittings of stainless steel.

Two medium-supercharged Bristol Pegasus engines are normally specified, those for the Service Stranraers being Pegasus Xs of 850 h.p. each.

The Stranraer operates as a completely self-contained unit with comfortable working and living accommodation for the crew.

During official trials the severe test of flying with one engine stopped was easily passed, and observation showed that there was no overheating of the engine used to maintain flight.

The third Supermarine type in production is the Walrus single-engined biplane amphibian constructed of duralumin and stainless steel. It is designed for service with warships, being able to fly off the deck of an aircraft carrier on its land undercarriage or operate from a vessel with no flying deck by virtue of its flying boat hull. The wings are easily and quickly folded.

The medium-supercharged Pegasus engine operates as a pusher.

VICKERS

FROM the Weybridge (Surrey) works of Vickers (Aviation), Ltd., have lately emanated three high-performance military monoplanes. In the order of their appearance these types